REVIEWS.

ART. XV.—*The Principles and Practice of Surgery.* By JOHN ASHHURST, JR., M.D., Surgeon to the Episcopal Hospital, Surgeon to the Children's Hospital, etc. Illustrated with five hundred and thirty-three engravings on wood. 8vo., pp. 1011. Philadelphia: Henry C. Lea. 1871.

THE declared "object of this work is, as its title indicates, to furnish, in as concise a manner as may be compatible with clearness, a condensed but comprehensive description of the Modes of Practice now generally employed in the treatment of Surgical Affections, with a plain exposition of the principles upon which these modes of practice are based." There has been claimed for it, further, an American character, rendering "accessible to the profession at large the experience of practitioners of both hemispheres," "so much in this country having of late years been done for the advancement of surgical art and science, especially by the experience of the late war."

Any single volume of one thousand pages, embracing the Principles of Surgery and Practice as applied to the many general and local surgical diseases and injuries, must of necessity be, in the main, a work for students and general practitioners, and the chief questions to be answered in the estimating of its value, real and relative, are, how far does it present the pathological views of the day, and the practice most in accordance with those views as confirmed by the experience of surgeons competent to observe and decide. The answering of these questions necessitates an examination of the work somewhat in detail.

Of the forty-seven chapters into which the book is divided, two are devoted to "Inflammation;" two to "Operations in General and Minor Surgery;" two to "Amputations;" two to "Effects of Injuries in General, Wounds, and Gunshot Wounds;" eleven to "Surgical Injuries" of vessels, nerves, muscles, bones, joints, and special regions; and the remainder to "Surgical Diseases," local and general. The chapters on Inflammation certainly present a brief, plain, easily understood statement of the more modern doctrines. All sides of questions yet under discussion are given, and there is to be noticed a much-to-be-commended freedom from those positive dogmatic assertions of individual opinions as established laws and facts, which are to be found in some of the writings of the present time.

"Inflammation," our author says, "was formerly considered as a disease, an entity, a something superadded to the natural condition of the part. This view is now almost universally abandoned, and authors, though differing as to the proper explanation to be given of many of the phenomena of inflammation, are, I think, generally agreed that these phenomena are mere modifications of the phenomena of natural textural life. These changes, which are always due to the action of an irritant, no matter whence derived, may be observed as affecting the phenomena respectively of function, nutrition, and formation, and in each the changes are primarily in the direction of excess."

As regards *function*, there is first increased activity, followed by perversion, and eventually, perhaps, by diminution or even total abolition. The *nutritive* changes are shown in an altered state of the vascular system of the part (as Mr. Simon has well put it: "A part does not inflame because it receives more blood. It receives more blood because it is inflamed"); in an altered state of the blood itself; in an altered condition of the parenchyma (temporary hypertrophy); and in a change as regards the neurotic condition, which doubtless reacts upon both vessels and parenchyma. The *formative* changes consist in the production of lymph and of pus. There may be also a destruction of existing tissue, resulting in its being thrown off as effete material, by the processes of ulceration and gangrene. Respecting the origin of the lymph-corpuscle and the fibrillous element of lymph,

> "the two theories which at present chiefly divide the suffrages of pathologists are, (1) that which looks upon the new cellular elements as the result of proliferation of pre-existing cells, and (2) that which regards the cells of inflammatory lymph as identical with the white blood corpuscles and cells found in the lymphatic vessels, as identical, in fact, with the *wandering cells* which Recklinghausen has described as existing in connection with the ordinary connective-tissue corpuscles. * * * Hence, it would appear not improbable that both elements of inflammatory lymph may originate in pre-existing structures, the corpuscular from an increase in the number of wandering cells, from proliferation of the ordinary connective-tissue cells, or from both sources, and the fibrillous element from a transformation of the filamentary intercellular substance."

The kindred vexed question of the origin of the pus corpuscle is treated with similar fairness.

> "In many cases (as in abscesses), the former [pus] seems to originate directly from the latter [lymph] by a simple liquefaction of the gelatinous intercellular substance of lymph; but in other instances the pus cell appears to have a different source. Virchow and other observers believe that pus-corpuscles originate from rapid proliferation (luxuriation) of connective-tissue and other nucleated cells; while Cohnheim, on the other hand, maintains that the sole origin of the pus-corpuscle is the migration by amœboid movement of the white blood-corpuscle through the vascular walls. Finally, Dr. Stricker and his able co-labourers, while acknowledging the origin of pus-cells from both these sources, have shown that the pus-corpuscles themselves divide and multiply, and that in profuse suppurations this is probably the chief mode of pus formation."

The remainder of the chapter is devoted to a "clinical view" of the causes, symptoms, course, and terminations of inflammation—well-known facts and phenomena being clearly yet briefly stated. Perhaps the most interesting point noticed is the reference to Dr. Meissner's experiments as appearing to "show that certain nerve fibres exercise a peculiar 'trophic' function, and that a lesion of such fibres may be the immediate and determining cause of an inflammatory condition of the parts supplied." In a recent lecture by Eulenburg, the same view is further maintained, nutritive changes, even to atrophy and hypertrophy, being attributed to trophic-nerve lesion.

> "Experiment and pathology have demonstrated that alterations in the nutrition of the most different tissues—epidermoid, subcutaneous, muscular, osseous, articular, lymphatic—ensue in consequence of artificial or accidental injuries of nerves. Without mentioning the numerous experiments performed in proof, I will only call to mind the phenomena following gunshot injuries or other trau-

mata causing partial or total destruction of mixed nerve trunks. Our late war has furnished abundant material for this purpose, and I have myself observed the most exquisite examples in proof. * * As Fischer has lately exhibited, œdema and erysipelatous reddening (the shiny fingers and toes of Paget), further, anomalies in the growth of the hair, exanthemata, anchylotic joint inflammations, contractions, hyperplasia, and later, concentric atrophy of the bones have all been observed after injury of the nerves of the extremities. To refer all these alterations exclusively to injury of the vaso-motor nerve fibres would be a labor of the greatest difficulty; for we know that elevation of temperature, reddening, and increase of secretion occur after division of the vaso-motors—effects which, after injuries of mixed nerve trunks, either do not present at all or only transitorily, and, as a rule, soon to manifest opposite appearances. There must be, therefore, some further condition which compensates or more than compensates for the injury of the vaso-motors, and this, in the injury of mixed nerve trunks, is the *concomitant injury of the secretory, and in a narrower sense, the trophic nerve fibres.* * * *

"The one-sided progressive atrophy of the face occurring occasionally as an isolated disease it is certainly unreasonable to refer to vaso-motor cramp of a year's duration; as little, too, are evidences of a relaxation of vessels present, so that we must necessarily recur here to disturbances in the trophic system, as Samuel has long ago justly maintained. It is worthy of mention, too, that hypertrophy of one side of the face may occur in connection with injuries of nerves; Sterling has already communicated an interesting case of this kind. This coincides perfectly with the experiments of Mantegazza, who has observed hypertrophy of the connective-tissue, of the periosteum, the bones, lymph glands, etc., in animals after section of the nerves."

Chapter II: "Treatment of Inflammation," hygienic, local and general. Some very judicious remarks are made upon the *diet* of patients suffering from inflammation, and Dr. Ashhurst is evidently no believer in the starvation plan.

"It has been, I think, clearly shown by the researches of modern investigators, that in addition to the waste of tissue, which accompanies the inflammatory process, there is a large expenditure of force (as evidenced by the great elevation of temperature), and it is but rational to suppose that this waste and expenditure ought to be compensated for by a supply of easily-assimilable food. As to the results met with in practice, it of course becomes any one surgeon to speak with great modesty and hesitation; I can, however, honestly aver that I have met with better success in the treatment of inflammation upon this plan, than I did when I habitually directed low diet, according to the rules still laid down in many surgical works."

In the local treatment, special attention is called to "mediate irrigation" as described by Petitgand. Practically we are not familiar with it, but theoretically the plan commends itself, as safe, certain, and easily regulated; the which cannot be said for the ordinary methods of applying cold and heat. Poultices are more highly esteemed than they have been by many writers since the time of Liston. When the patient or nurse will see to it that they are properly made and applied, they are unquestionably of great service; but when, as is too often the case, they are badly made and irregularly changed, both surgeon and patient will be much better satisfied with the use of warm water and oiled silk. In the "Constitutional treatment," the debatable points are bloodletting and the use of mercurials. Our author has decided opinions, in harmony, too, with the great majority of the better surgeons of the day.

"It seems to me but reasonable that we should adopt the same principles in the management of traumatic inflammations that we do in dealing with those of idiopathic origin; and hence, that venesection should not be resorted to in

> the treatment of surgical affections, except for its immediate mechanical effect in relieving a vital part, the functional or structural integrity of which is in imminent danger. For example, bleeding may be necessary in a case of traumatic as in a case of ordinary apoplexy [under circumstances stated]. * * * Or when a wound of the lung is followed by great dyspnœa, pain and oppression, the loss of a little blood may be of benefit, just as it would at the outset of an ordinary pneumonia presenting similar conditions. Even under these circumstances, I believe local bleeding, by cupping or leeching, will be usually better than venesection; and it should always be considered that the loss of blood is an evil, which may indeed be preferable to a greater evil, but is never a positive good."

The mercurials he holds in higher esteem than do many of his fellow-workers and writers.

> "I cannot but believe," he says, "that it does exercise an influence, particularly over the second stage of inflammation, or that attended with the production of lymph. It is, however, like bloodletting and antimony, a dangerous remedy, and a positive evil, though it may on occasion do good. It should, I think, be reserved for cases in which an important organ is endangered, and should even then be used with great caution and reserve. It is especially adapted for inflammations of fibrous and serous membranes, such as the meninges and peritoneum. It should be given in small doses, as $\frac{1}{6}$—$\frac{1}{4}$ gr. of calomel, or $\frac{1}{2}$ gr. of blue mass, and may be conveniently combined with opium and ipecacuanha."

The latest English writer on surgery (Gant) thus presents what is, perhaps, the most prevalent view:—

> "Formerly, also, and until recently, it was unanimously held, that the same influence prevented or retarded the effusion of fibrin, and promoted its absorption. * * * Long as this therapeutic theory prevailed, and practice accordingly, there are reasons for doubting the accuracy of the one and the efficacy of the other. That mercury exercises some kind of an influence over nutrition there can be no doubt; but it is questionable how far the natural course of an inflammation, having induced the effusion of fibrin, may itself tend to absorption, apart from the co-operation of mercury."

The tendency seems to be to the restricting of the use of mercurials to the accomplishment of two purposes, the production of catharsis and the peculiar effect of the agent upon syphilitic manifestations.

Chapter III.: "Operations in General; Anæsthetics." The general remarks, while pertinent, need not especially engage present attention. Those on anæsthetics deserve the careful consideration of all readers of the book. The danger of anæsthetics being recognized, cases in which they should be employed are pointed out and indiscriminate use forcibly warned against.

> "It is to be feared that students and young practitioners often get a false impression upon this point, and from seeing the frequency and apparent profusion with which anæsthetics are administered by their clinical teachers, derive a notion that these agents are perfectly harmless, and may be indiscriminately resorted to under all circumstances. The true rule upon this matter (a rule which is, indeed, applicable to all our perturbing modes of treatment) is, that when anæsthetics are not positively beneficial, they are injurious. Hence, under ordinary circumstances, they should not, I think, be employed, except for really important operations, and those which without their use would be tedious and painful. It is seldom right to give anæsthetics for purposes of diagnosis merely; there are, however, parts of the body the lesions of which are so obscure, and in dealing with which a mistaken diagnosis might lead to such grave errors of treatment, that it is often not only justifiable, but even imperative to employ anæsthesia in their examination. * * * Cases for what are

called *capital operations* (where life is immediately involved), are almost invariably cases for anæsthesia; for smaller operations, the practice should vary according to the time required for their performance; thus, anæsthetics should be given before operating for piles, or for phimosis, for these are tedious procedures; while opening an abscess, cutting an anal fistula, or tapping a hydrocele, is quickly done, and does not require the use of these agents."

The comparative merits of ether and chloroform are thus stated:—

> "Either agent has some advantages over the other, and some corresponding disadvantages. Chloroform is more prompt in its effects than ether, the patient is usually quieter while coming under its influence, it is less apt to cause vomiting, a smaller quantity than of ether is required to produce anæsthesia, and the patient reacts more quickly when the inhalation is stopped. It, however, requires much greater care in its administration than ether, and its use is attended with much greater risk to life. The above statement gives my own estimate of the relative merits of these agents, and, I believe, corresponds pretty closely with the opinions usually entertained on the subject." * * *

Mr. Spencer Wells, at a late meeting of the Medico-Chir. Society, objecting to chloroform, especially on account of its vomiting, to ether because it was so troublesome, declared his preference for bichloride of methylene, regarding it as the best anæsthetic.

Dr. Ashhurst's preference for ether is, we believe, not shared by all surgeons, and it must be confessed that the rapidly increasing list of deaths from the administration of chloroform is causing many an operator to question the propriety of continuing the use of his hitherto favourite anæsthetic agent. In this connection we are surprised to see no reference made to the preliminary subcutaneous injection of morphia when chloroform is to be given. It certainly seems in many cases to render necessary a much smaller quantity of chloroform, and to prevent to a large extent the occurrence of vomiting.

Chapter V. treats of "Amputations in General," the preparation of the patient therefor, the method of operating, the diseases of the stump, the comparative mortality of different amputations, and the causes of death.

Respecting the relative merits of the various methods of amputating, it is written—

> "If any general rule were to be given, I should say that the circular incision or Teale's method gives the best stump in the forearm, the modified circular in the upper-arm and the upper part of the thigh, the common double-flap operation immediately above and below the knee, the circular or lateral flap in the lower part of the leg, and the oval operation at the joints."

This estimate seems to be a very just one, and there certainly exists, particularly among many civil surgeons, an undue prejudice against the circular and modified circular operations. The paragraph on "Mortality after Amputations" contains a reference to Dr. Addinell Hewson's investigations upon barometric variations as affecting the death-rate, and statistical tables of the relative mortality after amputations according to locality, cause, and time of operation, tables compiled with much labour and care, and that will be valuable to surgeons for future reference.

It is a little surprising to see that the percentage of deaths after amputations of the leg in civil hospitals is higher than in military surgery in the proportion of about 4 to 3. With reference to early as compared with late amputations our author says:—

> "It is now, I believe, universally acknowledged among military surgeons that primary amputations (except of the hip-joint and the upper part of the

thigh) do better than others; of those which are not primary, the secondary do better than the intermediate. It is, however, commonly said that in *civil* practice secondary amputations are more successful than primary, and this difference has been accounted for by the different hygienic circumstances by which soldiers and civilians are respectively surrounded. I believe that the usual statement upon this point is erroneous, and that a careful collation of statistics will show that in both civil and military practice, primary amputations are followed by better results than others."

In an abstract of a report on the military service of the late Franco-German war, by Pirogoff, we find the following, bearing on this question:—

"With this opportunity, he takes occasion to differ with Langenbeck, who stated, at the 74th anniversary of the Friedrich Wilhelm Institute, that field service could only be of use to the severely wounded when it began immediately after the battle and ceased not later than two days after it; all unavoidable amputations, therefore, must be performed in the first 12–24 hours after the battle. The later and intermediate amputations give the most unfavorable mortality per cent.

"Against this view, Pirogoff maintains that conservative treatment and late amputation are so indissolubly united that if the possibility of the first be granted, the probability of benefit from the last must be acknowledged. The former doctrine of Bouchet and Larrey was consistent; it demanded that amputations should be as quickly performed as possible, because it claimed that the preservation of limbs was in general more dangerous than their amputation, and taught that whoever did not amputate immediately after an injury ran the risk, in the attempt of saving more limbs, of losing more lives. So soon, however, as conservative surgery is considered admissible into military service, so soon, to be consistent, must protest be entered against early amputations. To defend conservative surgery and at the same time to advocate early amputation is to be inconsistent at once. In considering the favourable course of early in comparison with the unfavourable course of later amputations, it must not be forgotten that it was only the upper extremity that furnished this favourable result. And here conservative treatment has been attended by the best results. In the lower extremity, early as well as late amputations show the same unfavourable results. Whoever here gives preference to late over early resection must give the same preference to late over early amputations. In a word, the introduction of conservative treatment in modern military surgery is of itself a protest against early amputation, which of course admits of no preservation of the limbs."

The paragraph on the causes of death after amputations closes in these words:—

"*Pyæmia* is the chief cause of death after pathological amputations, after those of expediency, and after primary amputations for injury.

"*Exhaustion* is the chief cause of death after secondary amputations for injury, and ranks next to pyæmia as a cause of death after the primary, and those classed as pathological.

"Mr. Birkett, from a study of 171 cases, in which the operation was performed either by himself or under his direction, concludes that 'a large proportion of the patients submitted to amputation, when inmates of a metropolitan hospital, are the subjects of more or less advanced chronic disease of the thoracic or abdominal viscera,' and that 'the chances of death after operations appear to depend almost entirely upon the previous state of each patient's constitution.'"

Chapter VI. treats of "Special Amputations," the chief operations in the various localities being duly described. Hip-joint amputations, with tabulated results, occupy four pages; probably more space than they are entitled to, considering the rarity of their performance. We regret, however, that, as so much was written, a few lines more had not been added, making reference to the method of Lacauchie; a method by which the disadvantages of the abdominal tourniquet can be avoided, hemorrhage being controlled by compression of the femoral artery.

Chapter VII.: "Effects of Injuries in General, and Wounds;" embracing the consideration of shock, its nature and treatment, traumatic delirium, the local effects of injuries, the classification and treatment of wounds. Considerable attention is paid to the so-called "antiseptic treatment," and the value of it is summed up as follows:—

> "As has already been said, the merits of the antiseptic method cannot yet be considered as positively determined. Failure on the part of other surgeons to attain the expected results, is attributed by the advocates of the plan to some mistake or neglect in the application; and such may doubtless be the case. But it is obvious that any mode of treatment which is so intricate and complicated as to elude the skill of such excellent surgeons as have failed with the antiseptic dressing, is not likely ever to be adapted for general employment."

Is it this intricacy and complicated nature of the antiseptic dressing that causes failure? Is it not, in the great majority of cases, want of care in applying a not very complicated dressing, and unwillingness to devote to such application the requisite time. Antiseptic dressing does not necessarily mean carbolic acid dressing, but that which will prevent the access to the surface of a wound or ulcer of undisinfected air.

Prof. Lister chiefly employs, it is true, carbolized dressings, but prefers the chloride of zinc solution as a primary application to wounds already open. A year ago he spoke favourably of the use of cotton, either simple or carbolized, on account of its well-known power of filtering air of contained organic germs; and Guérin has claimed that raw cotton is the best of all dressings after amputations, best because of its easy application, and complete prevention of pus-decompositions. Observation of civil and military hospitals has never elsewhere shown us such healthy appearing wounds, and such freedom from decomposed, irritating secretions, as in Lister's own wards; and certainly the extraordinarily successful issue of his cases cannot be attributed to the special favourableness of the hygienic surroundings of those under treatment in the Edinburgh Infirmary.

Chapter VIII. is devoted to "Gunshot Wounds," a subject unfortunately very familiar to American surgeons. There are stated, as usual, the once characteristic appearances of the entrance and exit wounds. It was noticeable in our war, and still more in the continental wars since, that with the improvement in precision of the arms employed, and the changes made in the shape and weight of the bullet, the differences in these wound-appearances have become much less marked; so much so indeed that Pirogoff has declared that, in the Franco-German war, "the orifices of entrance and exit could not be distinguished, both openings presented the same appearance." In reference to excision in the upper extremity, Dr. Ashhurst says:—

> "It may now be said that in most cases of injury of this part of the body, excision should be the surgeon's first thought, and should be preferred to amputation whenever the destruction of parts does not manifestly render the latter operation imperative. * * *
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> "Primary excision is the best mode of treatment for gunshot injuries of the shoulder-joint. * * *
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> "Excision of the elbow will still be an operation to be recommended in military practice, for the prospect of preserving a useful arm fully justifies the surgeon in incurring the slight additional risk over that of an amputation.

> "Excision of the wrist-joint has not been much practised in military surgery; the results of such operations as are recorded have been sufficiently satisfactory as regards life, but rather unsatisfactory as regards the utility of the preserved limb."

These are certainly the views of the great majority of surgeons, and the experience of our war justifies them. We find, however, that Pirogoff, in the war of 1870, found "some fifty cases of recovery of gunshot wounds of the shoulder, elbow, and ankle without resection, a fact which is significant against the adoption of early resections." Respecting wounds of the knee-joint our author agrees with Guthrie in the opinion that they require amputation; the choice being regarded as lying between this operation and excision of the knee. This latter operation, with its mortality of over 75 per cent. (fatal in every case that we have personally observed), "should be banished from the practice of military surgery." But should the "rule be regarded as imperative that every gunshot fracture of the knee-joint is a case for amputation?" We have thought so, though we have seen a very few cases of recovery without either amputation or excision. But we now find it stated in the abstract already several times referred to, that

> "What neither he [Pirogoff] nor any other surgeon [?] could have anticipated was the so extraordinarily happy termination of a great number of cases of gunshot wound of the knee-joint.[1] He counted forty such fortunate cases; in some cases, indeed, even motion was maintained in the penetrated joint, and in two instances of recovery the ball was still in the bone. He ascribes these favourable results to the smallness of the chassepot projectile and the direction of the wound, from before backwards."

As was to have been expected, in the preparation of this chapter free use has been made of the very valuable circulars issued from the Surgeon-General's Office.

Chapter IX.: "Injuries of Bloodvessels." For the arrest of hemorrhage the ligature is preferred to either acupressure or torsion, and the surgical world at large is of the same opinion. It requires no little courage and faith on the part of an operator to lay aside the ligature, and trust to the needle, or torsion, for the proper closure of a large artery. Whether or not the recognized disadvantages of the ligature can be wholly overcome by the employment of antiseptic animal ligatures, and whether the latter will ever come into general use, remains to be seen. About seven pages are devoted to the "lines of incision for deligation of special arteries," more than half of which space is taken up with woodcuts. We may express our doubts of the value of such cuts in a work on surgery proper, or indeed in any work; for unless one knows well the anatomy of the several regions he will not be able to derive any benefit from them, and if he does know such anatomy he will not need the illustrations.

Chapters XI., XII.: "Fractures." The various definitions, explanations, and directions are clearly given in as few words as the subject will permit. Ununited fractures are considered somewhat in detail, upon which subject the literature of the profession has lately been increased by the very valuable monograph of Berenger-Feraud. In the treatment of fractures of the clavicle, we find the use of an axillary pad condemned; as we think wisely. How it has managed to hold, as long as it has, a place in the surgeon's armamentarium we have never been able to understand, for when by its position of any special service its pressure is so great as to be intolerable. The simple adhesive-plaster dressing is not only the simplest but the best, a dressing also applicable to fractures of the several parts of the scapula.

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[1] "Neudorfer in his writings cites repeatedly cases of recovery after gunshot wounds of the knee-joint, some of them with partial use of the injured joint. It is stated also in the appendix (p. 224) "we may now cherish the hope as well ounded, if it should become an axiom in military surgery in cases of injury to the knee-joint to apply an immediate plaster bandage instead of resorting as hitherto to immediate amputation, that the number of cases of recovery would be much greater; might be cited, indeed, as of daily occurrence, instead of being regarded as rarities and fortunate exceptions to a rule."

The pistol-shaped splint receives the usual commendation in the treatment of fractures of the lower extremity of the radius; why, we fail to understand; for the possible securing by its employment of any theoretical benefit we have found to be accompanied by the causing to the patient of no little practical discomfort and pain. By some oversight no mention is made of Prof. Moore's (of Buffalo) interesting and valuable experiments and practical conclusions deduced therefrom; an omission which we hope to see corrected in a second edition. Preference is expressed for the "sand-bag and extension" treatment, the "American method," in fractures of the femur. The cumbrous long splints with their wretched perineal bands ought to be consigned to "Museums of Antiquities."

Chapter XIII.: "Dislocations." To the ordinary dislocations of the head of the radius should be added that form of displacement to which attention has lately been called by Dr. Lyell; occurring in young children, especially girls, characterized in the two cases that we have seen by semi-pronation of the hand, pain only when an attempt is made to pronate and supinate, unimpaired motions of elbow and wrist; the difficulty being entirely, and at once, relieved by strongly supinating the hand, and making gentle pressure over the head of the radius. In treating of hip dislocations, due regard has been had to the experiments of Bigelow as set forth in his masterly monograph.

Chapter XV.: "Injuries of the Head:" a chapter written with much care, on a subject that has evidently engaged no little of Dr. Ashhurst's thought and attention. In reference to "Concussion," he says:—

> "Every case of concussion is, I believe, accompanied with *shock*, and in many instances the symptoms of the latter condition alone can be recognized. * * * Even in the intermediate cases, which are often spoken of as typical instances of concussion, though, as a matter of convenience, we may trace their clinical history, and divide it into stages, we cannot point to any symptoms which definitely characterize the lesions of concussion, apart from those of other cerebral injuries. Indeed it would be better, I think, if we could dispense altogether with the term concussion as denoting a *condition*, and look upon it as merely indicating the *cause* of what have been described as *concussion lesions*, viz.: *cerebral contusion, laceration, extravasation.* * * * I regret that I cannot agree with those surgeons who consider the diagnostic marks between compression and concussion to be plain and easily recognizable. * * * Though in certain cases we can say without hesitation, in view of the one-sided paralysis, profound coma, and other symptoms mentioned, this is compression or that is concussion, there are other cases in which it is impossible to draw such a distinction; compression may disappear spontaneously, leaving concussion, while concussion, by a continuance of intra-cranial hemorrhage, may end in fatal compression."

Of its treatment he says:—

> "As a matter of fact it is very seldom indeed that a case of concussion requires any stimulus at all. * * * [After reaction has taken place], rest, both mechanical and physiological, should still be enforced; and if the patient be restless, the surgeon need not fear to give opium. I am aware that there is a good deal of difference of opinion as to the propriety of administering opium in injuries of the head, but surely there is nothing to contraindicate it in what we know of the pathology of these cases, while its soothing and calming effect is exactly what is required."
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> He "would restrict the use of the trephine within very narrow limits; it is not to be used with the idea of relieving compression, nor with the idea that there is any special virtue in the operation, to prevent encephalitis. The trephine should be used merely as Hey's saw is used, mechanically, to enlarge an opening which would be otherwise too small to allow the surgeon to carry out plain therapeutic indications."

Upon its use in extravasations, in intracranial suppurations, and in cases of epilepsy, his views are eminently judicious and in harmony with the teachings of the day.

Chapter XVI.: "Injuries of the Back." A table is here given of 36 resections of the spine for fracture, of which 29 resulted fatally, 3 were relieved, in 2 no benefit was received, and in 4 the result is unknown. "The operation, far from increasing, positively diminishes the chances of recovery."

Chapter XVII.: "Injuries of the Face and Neck." Of "foreign bodies in the air-passages" the mortality is stated to be "in general terms, as nearly as may be, 1 in 3, the death-rate *after operation* being less than 1 in 4 (24.8 per cent.), but *without operation*, more than 2 in 5 (42.5 per cent.). The period during which a foreign body may remain in the air-passages, and yet be spontaneously expelled, varies from a few hours up to many years. In 64 of 124 cases of spontaneous expulsion with recovery, collected by Mr. Durham, this period was between one and twelve months."

Respecting the relative advantages of laryngotomy and tracheotomy, our author says:—

> "While I do not believe that any rule of universal application can be safely laid down upon this question, I would advise in general terms, that *tracheotomy above the isthmus* should be preferred in all cases in which time is afforded for a careful and deliberate operation; but that if great haste be essential, *laryngotomy* * * * should be performed instead. When the operation is required by the presence of a foreign body in the windpipe, a more definite rule may be given. If the offending substance be lodged in the larynx, that part itself must be opened; but if the foreign body be in any other part of the air-passages, tracheotomy is the operation to be chosen."

Chapter XVIII.: "Injuries of the Chest." In the paragraph on the treatment of lung wounds, the "hermetical sealing, or Howard's method," is condemned as usual; as is also venesection, the use of which proved in our late war to be unnecessary and injurious, and according to Neudorfer the same was found to be true in the Franco-German war. Many an American surgeon, however, remembers how he once went forth, believing that in cases of wound of the lung, complicated with severe internal hemorrhage, he was to tie up the arms, and bleed "*pleno rivo ad deliquium.*"

Chapter XIX.: "Injuries of the Abdomen and Pelvis." Contusions of the abdomen, attended with laceration of the abdominal viscera, are pronounced, "in the majority of instances, necessarily fatal." In this connection an intimation might have been given, for the benefit of the student and younger practitioner, that the visceral lacerations may occur without there being any external indication of injury. In one case under our own observation, a man having been run over by a horse-car, there were no external appearances of abdominal injury, yet he died in 2½ hours, and post-mortem examination revealed lacerations of the stomach, duodenum, liver, spleen, and both kidneys. The diagnosis of penetrating from non-penetrating wounds is declared "often difficult, and any exploration with a probe would be manifestly improper." Yet we hear, not very unfrequently, of surgeons of eminence probing (once even to the extent of *twenty-two inches*), gunshot wounds of the abdomen, in which there has been penetration and wounding of the contained viscera. Might it not be well for these surgeons to content themselves with a little less accuracy of diagnosis, that they might afford their patients a little more chance of recovery? In cases of the female catheter slipping from the fingers and being sucked into the bladder, we find it judiciously advised to "*at once* dilate the urethra and remove the foreign body. I have known fatal ulceration to result, under these circumstances, from the delay of only a few days."

Chapter XX.: "Diseases Resulting from Inflammation." Though the classification of ulcers is simpler than that in many similar works, we should have preferred seeing the yet simpler division into acute and chronic, the classification adopted by Prof. Gross. As to "transplantation of cuticle," Dr. Ashhurst is not so much of an enthusiast as some of his fellow surgeons at home and abroad.

Considerable space is occupied in the consideration of "hospital gangrene," but not more than we should expect in an American work published so soon after the close of the war. Our own experience was fortunately very limited, but, in the few cases under our care, the *permanganate of potassa* answered every indication; and we can agree with Dr. Ashhurst in his statement that "I have never as yet been disappointed in its effect; it is but just, however, to say that I have not had occasion to try it in any cases of the worst form, such as are described by Guthrie."

In the treatment of "carbuncle," the use of the knife is not advised, adhesive plasters and pressure being recommended. A few years ago, it will be remembered, considerable attention was attracted to the external application of castor oil and turpentine combined, a method of treatment which certainly succeeds well in many cases.

Chapter XXI.: "Erysipelas." The differential diagnosis is clearly and succinctly given; the treatment recommended, judicious. It might be suggested that the tr. ferri chloridi may be advantageously pushed beyond the limit stated (♏xx to ♏xxx); the dose can be safely increased to ʒj –ʒij. In severe cases of the phlegmonous variety, multiple incisions are recommended. Will it not be safer in many cases to make a single long free incision, and avoid the risk of the skin between the many small incisions becoming gangrenous, as it will sometimes?

Chapter XXII.: "Pyæmia." As to the pathology of this "bane of operative surgery," our author considers the most plausible theory, "that which makes it dependent on the introduction of a septic material into the blood, and which looks upon the processes of thrombosis and embolism as subsidiary and not absolutely necessary. * * * * We are thus brought to the conclusion, that the only theory which is capable of accounting for all the phenomena of pyæmia, is that which supposes the pyæmic condition to be induced by the absorption of the septic material (usually in a liquid, but possibly sometimes in a gaseous state), which unfits the blood for the processes of healthy nutrition, induces capillary stagnation and its consequences, low forms of inflammation, or serous and synovial effusions, and may, and probably does in most cases, cause venous thrombosis, giving rise to the occurrence of loose and ill-formed coagula, which, rapidly undergoing disintegration, cause capillary embolism, and thus produce the secondary deposits, or metastatic abscesses, which are so common in this affection."

In the late discussion in the French Academy, Verneuil declared that "purulent infection ends in suppuration but does not arise from it," and that there can be "no pyæmia without sepsine and emboli," (the limited application by the French of the terms pyæmia and purulent infection will be remembered).

Chapter XXIII.: "Diathetic Diseases" (Struma, Rickets). Passing over the general remarks on struma and the pathology of tubercle and scrofula; the relations of the latter diseases to operations are thus stated:—

> For "operative interference in tuberculous cases, no general rule can be given. The prognosis of an amputation or excision for tuberculous disease, is undoubtedly less favourable than that of a similar operation for scrofulous, or simple chronic inflammation. If there be evidence of tuberculosis of internal organs, any operation should, as a rule, be avoided; the only exceptions are—(1) when it appears that the visceral disease is caused by the external affection, and when, therefore, there would be reason to hope that by removing the latter the progress of the former might be checked; and (2) when the patient's suffering from the external disease is so great, that the operation is called for simply for the relief of pain. * * * With regard to operations in *scrofulous* cases, no rule of universal application can be laid down. I am decidedly of the opinion that, in the immense majority of instances, enlarged cervical glands should not be interfered with. * * * With regard to operations for scrofulous bone and joint disease, the question is more doubtful. As a rule it may be stated that no operation should be performed, while a reasonable hope remains that a cure can be effected by expectant treatment; if, however, the powers of nature should be manifestly incompetent for the task, or if (as is often the case among patients of the poorer classes) the time which would probably be required for a natural cure be an important consideration, operative measures may be properly resorted to, and will often be followed by the most gratifying results. Excision is of course preferable to amputation, when the circumstances of the case permit a choice."

Two pages are devoted to rickets, a disease which is, very possibly, more common among us in its milder forms than is generally believed, and upon which valuable papers have of late been given to the profession by Jacobi, of New York, and Parry, of Philadelphia.

Chapters XXIV., XXV.: "Venereal Diseases." These, Dr. Ashhurst, in common with most of the more recent writers, regards as *three* in number: *gonorrhœa*, *chancroid*, and *syphilis*. The recommended treatment of the first is wholly or chiefly by injection, a method which is doubly valuable when it is practicable for the surgeon to secure a thorough preliminary cleansing of the urethra and the contact of the medicated solution with all the affected part; almost impossible when the ordinary syringe is employed, but perfectly and easily accomplished by the use of a "reflux catheter."

The most interesting question connected with the two remaining affections is as to their relationship. The "dual theory" is very generally accepted by writers, though the diversity of chancroid and syphilis is, "even now, denied by a good many surgeons, and is practically ignored by a still larger number." But there are some phenomena, in some cases, which it is very difficult to reconcile with the declared entire distinctness of the two diseases Explanations are given, and attempts made to square facts with theory, but it seems as though sometimes more credulity was required for the acceptance of the explanations of the "dualists," than the theory of the "unicists." It is possible that an early and exact diagnosis of syphilis may yet prove obtainable by the microscopic examination of the blood. It will not be forgotten .that Dr. Salisbury declared, four years ago, that he had discovered algoid forms pathognomonic of syphilis; and now we have Lostorfer announcing the discovery of corpuscles in the blood of syphilitic patients, so characteristic of the disease, and so confined to the subjects of it, that he is able simply by microscopic blood-examination, to determine who is and who is not syphilitic; and Lostorfer's honesty and accuracy are vouched for by Skoda, Stricker, and Hebra.

Chapter XXVI.: "Tumours." The classification adopted is the usual one of English writers of the present day, viz.: non-malignant and malignant; the former including cystic tumours, solid tumours and outgrowths; the latter, cancer and epithelioma. Respecting the local origin of cancer, Dr. Ashhurst expresses himself as follows:—

> "That a local cause, traumatic or otherwise, can, without any previous predisposition on the patient's part, give rise to the formation of a cancer, it is hard to believe; at the same time, cancer may undoubtedly (from a practical point of view) be looked upon as, at first, a local affection, its early manifestations being of a local nature, and the only applicable treatment being of a topical character; even when 'cachexia' precedes the appearance of a cancerous tumour, the removal of the latter may relieve, at least temporarily, the cachectic condition."

In this connection and bearing upon the question of the relationship of epithelioma and other forms of carcinoma, it is interesting to notice Billroth's declaration, that "further observations, with new aids, have made it appear to me more probable that, even in the smallest cancerous nodules, epithelial elements always gave the first start for development. This has been confirmed by Waldeyer."

Chapter XXIX.: "Surgical Diseases of the Vascular System." The paragraphs on aneurism, constituting the greater part of the chapter, are interesting, and the statistical tables given will be found of much service to later workers in the same field. With reference to the comparative merits of ligation and compression, it is held that certainty so far as the cure of the aneurism is concerned, and danger to life, are on the one side, safety and greater liability to failure on the other. Compression is to be preferred—

> "(1) In all cases in which, from the age or general condition of the patient—from the existence of heart disease, or other aneurisms, or of marked structural change of the arterial coats—or from the prevalence of erysipelas, pyæmia, etc., the operation of ligation would be attended by particular risk; (2) in all cases in which the aneurism, being detected at an early stage, would be in the most favourable condition for the use of compression, and in which the pressure treatment, if even it failed, would not seriously lessen the prospect of benefit from subsequent ligation; and (3) in all cases, on the other hand, in which the aneurism, from its locality or size, would not probably be amenable to the ligature, and in which, therefore, pressure should be at least tried, before resorting to such formidable measures as amputation, or the 'old operation.'"

Chapter XXX.: "Diseases of Bones."

Chapter XXXI.: "Diseases of Joints." Here again we have carefully written condensed statements of what is at present known of the pathology of the diseases in question, and of the various methods of treatment in themselves and compared with each other.

Chapter XXXII.: "Excisions." To those for whose use the work under review is especially to be recommended, viz., students and general practitioners, the entire chapter will well repay careful study and remembrance; to surgeons it is not less valuable on account of its statistics.

Chapter XXXIII.: "Orthopædic Surgery." For the relief of the various forms of club-foot (diseases held to arise from the contraction of certain muscles or the paralysis of their antagonists), Dr. Ashhurst speaks more highly of tenotomy than do some who have written of late years on the subject. Of course if spastic contraction of a tendon or a set of tendons is the essential element of the disease in a given case, then section of such tendon or tendons will be the first and most important step towards remedying the deformity, but if paralysis from intra-uterine disease be the cause, tenotomy will in a large proportion of cases be unnecessary and improper. We should have expected, considering the proposed "American character" of this work, that its author would have noticed, at least by name, some of the orthopædic surgeons of our country.

Chapters XXXV., XXXVI.: "Diseases of the Eye and Ear." As might have been expected from the size and scope of the work, the various subjects touched upon in these chapters are hardly more than simply touched upon, thus giving the chapters much of a dictionary-like character. What, however, has been written is, so far as it goes, in harmony with the teachings of the best ophthalmic and aural surgeons of the time. The special fields of ophthalmology, otology, and gynæcology have been so widely extended during the past twenty years that in no single volume on general surgery can anything other than a bird's-eye view of them be taken.

Chapters XL., XLI.: "Hernia." The various operations for the "radical cure" having been referred to, their value is thus summed up:—

> "Hence, it would appear that the most favourable view to be taken of any operation which has been as yet proposed for the radical cure of hernia, is that while not necessarily followed by grave consequences, it is not unattended with risk, and by no means certain to effect the object designed; and that in consideration of the safe and really satisfactory means of palliation afforded by the use of a truss, the radical treatment must be looked upon as at best an operation of complaisance or expediency. * * * Occasionally justifiable, the operation is not, in any case, one to be urged upon the patient, nor to be performed without his fully understanding the uncertainties and dangers of the procedure; and in the immense majority of cases the surgeon will best consult both his own reputation and the good of his patient, by dissuading from any but palliative treatment."

As an important sign in establishing the diagnosis of strangulation, as distinguished from incarceration, peritonitis, and vomiting from other than hernial causes, attention is called to the absence of impulse on coughing, the limit of impulse being further of service as a guide to the location of the seat of strangulation. The use of the warm bath as an adjuvant to the taxis is spoken of as "often efficient" and proper to be employed; by some, local heat has been recommended. The bath is of service only by the general relaxation induced, and heat locally applied seems to us to be decidedly improper. It cannot affect the size of inextensible white-fibrous rings, and must increase the amount of blood brought into the constricted portion of the bowel, *i. e.* in one respect has no action favourable or unfavourable, in another tends to increase the already existing difficulty of effecting reduction. Cold, on the contrary, while it does not affect the inelastic tissues, lessens the amount of blood, and stimulates to contraction the muscular fibres of the bowel, thus diminishing the hernial contents. Philosophically, cold is *the* local adjuvant and practical results are in harmony with theory. No reference is made to the use of ether or rhigolene spray, which has been frequently and successfully employed; nor, to "subcutaneous aspiration," which has been highly lauded by the few who have tried it. Herniotomy without opening the sac is commended in proper cases, *i. e.* those

> "In which the seat of constriction is external to the sac; but as this point cannot always be determined beforehand, this mode of operating should be tried in every instance in which the duration of strangulation and the urgency of the symptoms do not contra-indicate its employment. A safe rule is that given by Birkett—to try this method in those cases and those only in which the taxis would be deemed justifiable."

Chapter XLIV.: "Urinary Calculus." Under this general head are embraced the nature, varieties, symptoms, and treatment of stone: lithotomy and lithotrity of course being considered somewhat at length. A valuable practical suggestion is, in lithotomy, to insinuate the finger into the bladder above the staff, "between its concavity and the roof of the urethra," thus obviating the difficulty in children of reaching the bladder.

Chapter XLVI.: "Diseases of the Urethra and Urinary Fistula." In this chapter we notice that it is, as usual, recommended after external perineal urethrotomy to introduce a catheter, and retain it for a couple of days. It is, we believe, becoming more and more the American custom to dispense altogether with the catheter, the advantage of keeping which in the wound is questionable.

The remainder of the work is devoted to the various diseases and malformations of the genital organs, male and female.

We have thus passed in review the several chapters of "Ashhurst's Surgery." Does it present the pathological views of the day, and the practice most in accordance with those views, as confirmed by the experience of surgeons competent to observe and decide? Unquestionably, yes; with possibly a very few exceptions, and these exceptions have reference to questions still under discussion. For students it is, we believe, the best work we have, and general practitioners will find pleasure and profit in reading it. Its statistical tables make it a work to which the author's fellow-workers will gladly refer. Dr. Ashhurst has done a good work, and we thank him for it. True, it is to a large extent a compilation, but it is well compiled; and who in these days could write a valuable *original* work on the whole immense field of surgical principles and practice? When the second edition is brought out, we hope that the size of the volume will be lessened by the omission of a large proportion of the "533 wood engravings" with which it is "illustrated." Its value will not, we conceive, be impaired thereby. P. S. C.